

Claims

WE CLAIM:

1. Apparatus comprising:

a radio card, said radio card including a housing, a radio disposed within said housing, a pair of radio antenna contacts positioned on said housing and electrically connected to said radio, and a radio electrical interface operably and electrically connected to said radio;

means for receiving said radio card;

means disposed on said receiving means for engaging said radio electrical interface;

a pair of receiving means antenna contacts disposed on said receiving means and positioned such that said pair of radio antenna contacts electrically encounter said pair of receiving means antenna contacts; and

an antenna electrically and operably connected to said pair of receiving means antenna contacts.

2. The apparatus of claim 1, further comprising:

a second pair of receiving means antenna contacts disposed on said receiving means;

and

a second antenna electrically and operably connected to said second pair of receiving means antenna contacts.

3. The apparatus of claim 2, further comprising:

a third pair of receiving means antenna contacts disposed on said receiving means;

and

a third antenna electrically and operably connected to said third pair of receiving means antenna contacts.

4. The apparatus of claim 1 wherein said receiving means comprises opposed grooves.

5. The apparatus of claim 1 wherein said receiving means comprises a slot.

1 6. Apparatus for utilizing a radio card, said radio card including a housing, a
2 radio disposed within said housing, a pair of radio antenna contacts positioned on said
3 housing and electrically connected to said radio, and a radio electrical interface operably
4 and electrically connected to said radio, comprising:

5 means for receiving said radio card;
6 means disposed on said receiving means for engaging said radio electrical interface;
7 a pair of receiving means antenna contacts disposed on said receiving means and
8 positioned such that said pair of radio antenna contacts electrically encounter said pair of
9 receiving means antenna contacts; and
10 an antenna electrically and operably connected to said pair of receiving means
11 antenna contacts.

12 7. The apparatus of claim 6, further comprising:
13 a second pair of receiving means antenna contacts disposed on said receiving means;
14 and
15 a second antenna electrically and operably connected to said second pair of receiving
16 means antenna contacts.

17 8. The apparatus of claim 7, further comprising:
18 a third pair of receiving means antenna contacts disposed on said receiving means;
19 and
20 a third antenna electrically and operably connected to said third pair of receiving
21 means antenna contacts.

22 9. The apparatus of claim 6 wherein said receiving means comprises opposed
23 grooves.

24 10. The apparatus of claim 6 wherein said receiving means comprises a slot.

25 11. The apparatus of claim 7 wherein said radio card further comprises a second
26 pair of radio antenna contacts positioned on said housing and electrically connected to said
27 radio and wherein said second pair of radio antenna contacts electrically encounters said
28 second pair of receiving means antenna contacts.

1 12. The apparatus of claim 8 wherein said radio card further comprises a second
2 pair of radio antenna contacts positioned on said housing and electrically connected to said
3 radio and wherein said second pair of radio antenna contacts electrically encounters one of
4 said second pair of receiving means antenna contacts and said third pair of receiving means
5 antenna contacts.

6 13. Apparatus comprising:
7 a radio card, said radio card including a housing, a radio disposed within said

1 housing, at least one pair of radio antenna contacts positioned on said housing and
2 electrically connected to said radio, and a radio electrical interface operably and electrically
connected to said radio;

3 means for receiving said radio card;

4 means disposed on said receiving means for engaging said radio electrical interface;

5 at least three pair of receiving means antenna contacts disposed on said receiving
6 means and positioned such that at least one pair of said at least one pair of radio antenna
7 contacts electrically encounter at least one pair of said at least three pair of receiving means
8 antenna contacts; and

9 an antenna electrically and operably connected to said pair of receiving means
10 antenna contacts.

11 14. Apparatus for utilizing a modem card, said modem card including a housing,
12 a modem disposed within said housing, a pair of telephone line contacts positioned on said
13 housing and electrically connected to said modem, and an electrical interface operably
14 connected to said housing and electrically connected to said modem, comprising:

15 means for receiving said modem card;

16 means disposed on said receiving means for engaging said electrical interface;

17 a pair of receiving means contacts disposed on said receiving means and positioned
18 such that said pair of telephone line contacts electrically encounter said pair of receiving
19 means contacts; and

20 telephone means electrically and operably connected to said pair of receiving means
21 contacts for providing a telephone signal to said modem card.

22 15. Apparatus for utilizing a modem card, said modem card including a housing,
23 a modem disposed within said housing, a cellular phone device operably and electrically
24 connected to said modem and disposed within said housing, a pair of cellular phone antenna
25 contacts positioned on said housing and electrically connected to said cellular phone, and
26 an electrical interface operably connected to said housing and electrically connected to said
27 modem, comprising:

28 means for receiving said modem card;

means disposed on said receiving means for engaging said electrical interface;

a pair of receiving means antenna contacts disposed on said receiving means and
positioned such that said pair of cellular phone antenna contacts electrically encounter said
pair of receiving means antenna contacts; and

a cellular phone antenna electrically and operably connected to said pair of receiving
means antenna contacts.

1 16. Apparatus for utilizing a communication card, said communication card
2 including a housing, one of a modem or radio disposed within said housing, communication
3 card contacts positioned on said housing and electrically connected to said radio or modem,
4 and an electrical interface operably and electrically connected to said modem or radio, said
5 apparatus comprising:

6 means for receiving said communication card;

7 means disposed on said receiving means for engaging said electrical interface;

8 receiving means contacts disposed on said receiving means and positioned such that
9 said receiving means contacts electrically encounter said communication card contacts;

10 a switching matrix electrically and operably connected to said receiving means
11 contacts;

12 at least one of antennas and telephone jacks attached to or disposed within said
13 apparatus and electrically and operably connected to said switching matrix; and

14 a control microprocessor, said microprocessor electrically and operably connected to
15 said switching matrix, wherein said control microprocessor interrogates the communication
16 card to determine to which antenna or telephone jack said communication should be
17 connected and wherein said control microprocessor communicates the appropriate
18 information to said switching matrix.

19 17. A computer device utilizing a radio card, said radio card including a radio
20 transceiver disposed within said radio card, a radio electrical interface operably and
21 electrically connected to said radio transceiver and positioned on one end of said radio card,
22 and radio card antenna contacts positioned on the other end of said radio card and
23 electrically connected to said radio transceiver; said computer device comprising:

24 a housing;

25 means for receiving said radio card within an opening in said housing, said receiving
26 means including means for engaging said radio electrical interface;

27 a cap disposed to matingly engage said opening in said housing;

28 cap antenna contacts disposed on said cap to engage said radio card antenna
contacts;

29 an antenna; and

30 connecting means for operably connecting said antenna to said cap antenna contacts,
31 wherein a portion of said connecting means is disposed in said cap.

32 18. The computer device of claim 17 wherein said cap includes a lip disposed to
33 sealingly engage said housing at the periphery of said opening in said housing.

34 19. The computer device of claim 18 wherein said lip is outwardly extending.

1 20. The computer device of claim 17 wherein said antenna is disposed in said cap.

2 21. The computer device of claim 17 including a band, said band including a first
3 end connected to said housing and a second end connected to said cap.

4 22. The computer device of claim 17 including:

5 a second antenna; and

6 second connecting means for operably connecting said second antenna to said cap
7 antenna contacts, wherein a portion of said second connecting means is disposed in said cap.

8 23. The computer device of claim 22 wherein said antenna and said second
9 antenna are disposed in said cap.

10 24. The computer device of claim 23 wherein said antenna and said second
11 antenna are designed to transmit or receive different radio frequency signals.

12 25. The computer device of claim 21 including:

13 a second antenna; and

14 second connecting means for operably connecting said second antenna to said cap
15 antenna contacts, wherein a portion of said second connecting means is disposed in said
16 cap.

17 26. The computer device of claim 25 wherein said antenna is disposed in said cap
18 and said second antenna is disposed in said band.

19 27. The computer device of claim 26 wherein said antenna and said second
20 antenna are designed to transmit or receive different radio frequency signals.

21 28. The computer device of claim 27 wherein said antenna and said second
22 antenna are designed to transmit or receive similar radio frequency signals.

23 29. The computer device of claim 21 wherein said antenna is disposed on said
24 housing and wherein a portion of said connecting means is disposed in said band.
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1 30. The computer device of claim 25 wherein said antenna and said second
2 antenna are disposed on said housing, wherein a portion of said connecting means is
3 disposed in said band and wherein a portion of said second connecting means is disposed
4 in said band.

5 31. The computer device of claim 30 wherein said antenna and said second
6 antenna are designed to transmit or receive different radio frequency signals.

7 32. The computer device of claim 30 wherein said antenna and said second
8 antenna are designed to transmit or receive similar radio frequency signals.

9 33. The computer device of claim 32 wherein said antenna and said second
10 antenna are disposed perpendicular with respect to each other.

11 34. The computer device of claim 17 wherein said cap is constructed of a cellular
12 foam material.

13 35. The computer device of claim 17 wherein said cap includes a shielding means
14 for preventing electronic noise from escaping from said housing.

15 36. The computer device of claim 29 wherein said connecting means includes a
16 micro shield strip.

17 37. The computer device of claim 30 wherein said connecting means and said
18 second connecting means includes a micro shield strip.

19 38. An apparatus capable of radio frequency communication comprising:
20 a communication card comprising a radio transceiver disposed within said
21 communication card and a communication card antenna interface electrically connected to
22 said radio transceiver;

23 a computer device comprising a housing and means for receiving said radio card
24 within an opening in said housing;

25 a cap disposed to matingly engage said opening in said housing, and said cap having
26 a cap antenna interface disposed on said cap;

27 a plurality of antennas electrically connected to said cap antenna interface; and
28 means for selecting one of said plurality of antennas for electrical connection to said
radio transceiver through said communication card antenna interface.

39. An apparatus capable of radio frequency communication comprising:

a communication card comprising a radio transceiver disposed within said
communication card and a communication card antenna contact electrically connected to
said radio transceiver;

a computer device comprising a housing and means for receiving said radio card
within an opening in said housing; and

1 a cap disposed to matingly engage said opening in said housing, said cap comprising
2 an antenna and a cap antenna contact electrically connected to said antenna, said cap
3 antenna contact disposed so as to matingly engage said radio card antenna contact.

4 40. A radio frequency communication apparatus comprising:

5 a communication card, said communication card including a housing, a radio disposed
6 within said housing, an antenna interface disposed on said housing and electrically connected
7 to said radio, and a communication interface disposed on said housing and electrically
8 connected to said radio;

9 a receiving device capable of receiving said communication card;

10 a plurality of antennas connected to said receiving device, and each of said plurality
11 of antennas having at least one electrical contact;

12 means disposed on said receiving device for engaging said communication interface
13 upon receipt by said receiving device of said communication card; and

14 said antenna interface and said electrical contacts being positioned so as to selectively
15 interconnect one of said plurality of antennas upon receipt by said receiving device of said
16 communication card.

17 41. A radio frequency communication apparatus comprising:

18 a communication card, said communication card including a housing, a radio disposed
19 within said housing, an antenna interface disposed on said housing and electrically connected
20 to said radio, and a communication interface disposed on said housing and electrically
21 connected to said radio;

22 a receiving device capable of receiving said communication card;

23 a plurality of antennas associatively connected to said receiving device;

24 means disposed on said receiving device for engaging said communication interface
25 upon receipt by said receiving device of said communication card; and

26 means for selecting one of said plurality of antennas for electrical connection to said
27 radio through said antenna interface.

28 42. A radio frequency communication apparatus comprising:

a communication card, said communication card including a housing, a radio disposed
within said housing, an antenna interface disposed on said housing and electrically connected
to said radio, and a communication interface disposed on said housing and electrically
connected to said radio;

a receiving device capable of receiving said communication card;

a plurality of antennas associatively connected to said receiving device;

means disposed on said receiving device for engaging said communication interface

1 upon receipt by said receiving device of said communication card; and
2 controller operable after receipt of said communication card by said receiving device
3 to selectively connect one of said plurality of antennas to said radio through said antenna
4 interface.

4 43. A radio frequency communication apparatus comprising:
5 a communication card, said communication card including a housing, a radio disposed
6 within said housing, and an antenna interface disposed on said housing and electrically
7 connected to said radio;
8 an antenna associatively connected with said communication card;
9 a receiving device capable of receiving said communication card;
10 means for identifying the existence of alternate antennas disposed with said receiving
11 device; and
12 means responsive to the identifying means for selecting an antenna for electrical
13 connection to said radio.

12 44. A radio frequency communication apparatus comprising:
13 a communication card, said communication card including a housing, a radio disposed
14 within said housing, and an antenna interface disposed on said housing and electrically
15 connected to said radio;
16 a receiving device capable of receiving said communication card;
17 means for identifying antennas disposed with said receiving device; and
18 means responsive to the identifying means for selecting an antenna for electrical
19 connection to said radio.

18 45. A radio frequency communication apparatus comprising:
19 a communication card, said communication card comprising a transceiver capable of
20 radio frequency communication, a housing surrounding and containing said transceiver unit,
21 and a first antenna associatively connected with said communication card;
22 a receiving device capable of receiving said communication card, said receiving device
23 including an second antenna associatively connected with said receiving device; and
24 means for selectively interconnecting either the first or second antenna with said
25 transceiver.

24 46. Apparatus for utilizing a communication card, said communication card
25 including a housing, one of a modem or radio disposed within said housing, and an electrical
26 interface operably and electrically connected to said modem or radio, said apparatus
27 comprising:
28 a switching unit;

1 means for receiving said communication card so as to engage and electrically
2 interconnect said electrical interface with said switching unit;

3 at least one antenna or telephone jack attached to or disposed within said apparatus
4 and electrically and operably connected to said switching unit;

5 a controller electrically and operably connected to control said switching unit; and
6 said processor responds to the communication card received by directing the
7 interconnection of the communication card with the antenna or telephone jack via the
8 switching unit.

9 47. An apparatus capable of radio frequency communication comprising:

10 a communication card comprising a radio transceiver disposed within said
11 communication card and a communication card antenna contact electrically connected to
12 said radio transceiver;

13 a computer device comprising a housing and means for receiving said radio card
14 within an opening in said housing;

15 an antenna;

16 a cap disposed to matingly engage said opening in said housing, said cap having a cap
17 antenna contact disposed on said cap to engage said radio card antenna contact; and

18 connecting means for operably connecting said antenna to said cap antenna contacts,
19 wherein a portion of said connecting means is disposed in said cap.
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